Tainara Rodrigues Teixeira

O Ponto de Partida: Adaptable patterns for made-to-measure creation.

SÃO PAULO
2025

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Final Course Project submitted to the Institute of Technology and Leadership (INTELI), to obtain a bachelor's degree in Computer Engineering.

Advisor: Prof. Bruna Mayer

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Epigraph

> “We may say most aptly, that the Analytical Engine weaves algebraical patterns just as the Jacquard-loom weaves flowers and leaves.”
>
> — **Ada Lovelace, 1843**

Resumo

RODRIGUES, Tainara. O Ponto de Partida: Adaptable patterns for made-to-measure creation. 2025. [nº de páginas]. Final Course Project (Bachelor) – Course [Hardware Engineering], Institute of Technology and Leadership (INTELI), São Paulo, 2025.

This Final Course Project presents the concept and development of a digital platform aimed at adapting crochet garments to different body types. The work is grounded in recurring limitations of traditional patterns—such as rigid sizing, the need for manual adjustments, and technical barriers faced by beginner and intermediate makers—proposing a more flexible and inclusive approach to creation and learning. The solution integrates personalization features—such as adjustable stitch maps, a structured stitch library, and body-adaptation tools based on user measurements—with resources to save, export, and share patterns, encouraging reuse and the dissemination of knowledge. In addition, the platform includes an internal social environment to promote interaction, collaboration, and the exchange of practices among users, strengthening community building at the intersection of fashion and technology.

Keywords: adaptability; creativity; fashion; crochet; stitch.

ABSTRACT (mandatory item – NBR 14724, item 4.2.1.8)

RODRIGUES, Tainara. O Ponto de Partida: Adaptable patterns for made-to-measure creation. 2025. [nº de páginas]. Final Course Project (Bachelor) – Course [Hardware Engineering], Institute of Technology and Leadership (INTELI), São Paulo, 2025.

In the crochet community, adapting a garment to different body types still relies largely on trial and error, prior experience, and manual adjustments that are not always intuitive for learners. In this context, this Final Course Project proposes the development, by me, of an innovative digital platform focused on the adjustment and customization of crochet garments, aiming to make the adaptation process more accessible, structured, and inclusive.

The solution provides a personalized experience through features such as adjustable stitch maps, which allow users to visualize and modify pattern construction according to specific needs; a stitch library, organized for reference and learning support; and body-adaptation tools based on user measurements, enabling more accurate adjustments in size, proportions, and fit. The platform also includes resources to save, export, and share patterns, encouraging reuse and the dissemination of knowledge among creators.

In addition, the project includes the creation of an internal social network to foster connections, collaborations, and the exchange of expertise, strengthening community building and continuous learning. Positioned at the intersection of fashion and technology, the proposal seeks to offer a functional tool that expands creative autonomy and supports the production of made-to-measure pieces for diverse user profiles.

Keywords: adaptability; creativity; fashion; crochet; stitch.

Technical Terms Glossary

A

Adaptive or accessible patternmaking – Patternmaking approaches that adapt conventional construction to improve usability and fit across different needs, prioritizing accessibility, comfort, and practical dressing considerations. (Source: Iowa State University Pressbooks, *Adaptive Apparel* – patternwork chapter.) iastate.pressbooks.pub

Anthropometry in fashion – The study of human body measurements applied to garment development and patternmaking to improve fit and comfort across different body proportions. (Source: Maffei & Menezes, *A Antropometria no Design de Moda*, 2009.) Revistas Udesc

B

Blocking – A finishing process that uses moisture (and sometimes pinning) to help stitches settle and to shape the piece to the intended dimensions and drape. (Source: Craft Yarn Council – blocking guidance.) craftyarncouncil.com

Body sizing charts – Standardized body measurement tables used to guide sizing decisions and sizing consistency (e.g., chest, waist, hip, sleeve). (Source: Craft Yarn Council – body sizing standards.) craftyarncouncil.com

Browzwear – Digital apparel design and development software focused on creating accurate "virtual twins" of garments for visualization and workflow efficiency. (Source: Browzwear official website.) Browzwear

C

CLO 3D – 3D fashion design software that enables realistic garment visualization through simulation technologies. (Source: CLO official website.) clo3d.com

Crochet chart symbols (stitch charts) – Standardized symbols used in crochet diagrams to represent stitches and construction visually. (Source: Craft Yarn Council – Crochet Chart Symbols standard.) media.craftyarncouncil.com

Circular economy – An economic model aimed at keeping products and materials in use and reducing waste through reuse, repair, and regeneration. (Source: Ellen MacArthur Foundation – circular economy definition.) ellenmacarthurfoundation.org

Creative Commons (CC) licensing – A licensing framework that allows creators to define how others may share, reuse, remix, or distribute works (e.g., patterns), typically requiring attribution depending on the license. (Source: Creative Commons – CC licenses overview.) Creative Commons

D

Design for sustainability / sustainable fashion – Practices and strategies intended to reduce environmental and social impacts across a product's lifecycle, including materials, production, and consumption. (Source: UNEP – sustainable fashion overview.) UNEP - UN Environment Programme

Drape (fabric drape) – The way a textile hangs and forms folds under its own weight, influencing aesthetic and fit outcomes. (Source: ScienceDirect Topics – fabric drape overview.) ScienceDirect

E

Ease – The difference between body measurements and garment measurements; it affects comfort, mobility, and style (e.g., positive or negative ease). (Source: The Fold Line – ease explanation.) The Fold Line

F

Fit – How a garment conforms to the intended body shape; often discussed alongside the distinction between body measurements and garment measurements. (Source: Techpacker – body vs garment measurements.) Techpacker

G

Gauge (US) / tension (UK) – The number of stitches and rows within a given measurement (commonly 10×10 cm or 4×4 in), affected by hook size, yarn, and the crocheter's tension. (Sources: Craft Yarn Council – gauge basics; DMC – crochet tension/gauge explanation; Craft Yarn Council – term differences.) craftyarncouncil.com+2DMC+2

Gauge swatch – A small test piece used to measure gauge before producing the final item, helping ensure sizing accuracy. (Source: Craft Yarn Council – gauge guidance.) craftyarncouncil.com

Grading (pattern grading) – The process of scaling a base pattern into additional sizes while preserving proportions and design intent. (Source: FIT NYC Library Guides – pattern grading.) FitNYC

I

Inclusive sizing – Designing and grading products to accommodate a wider range of body types and measurements, improving access and usability across diverse users. (Source: Audaces – inclusive sizing discussion.) Audaces

M

Made-to-measure (MTM) – Clothing made to fit a person's measurements rather than being bought as a standard ready-made size. (Source: Collins Dictionary – "made-to-measure".) Collins Dictionary

Minimum viable product (MVP) – The simplest usable version of a product released to validate assumptions and gather feedback for iteration. (Source: Atlassian – MVP definition.) Atlassian

P

Pattern block (sloper) – A foundational pattern used as a base for drafting other patterns. (Source: In the Folds – “What is a pattern block?”.) In the Folds

S

Stitch library (stitch dictionary) – An organized collection of crochet stitches (often with instructions and examples) used for reference, learning, and pattern development. (Source: The Crochet Crowd – stitch library.) The Crochet Crowd

Stitch map (crochet stitch chart/diagram, in the context of this project) – A visual representation of a crochet pattern using chart symbols, supporting comprehension and structured adaptation. (Source: Craft Yarn Council – chart symbols standard.) media.craftyarncouncil.com

Sustainable patternmaking / zero-waste pattern cutting – Patternmaking approaches designed to minimize or eliminate textile waste through layout and design strategies. (Source: Redress – zero-waste pattern cutting overview.) Redress Design Award

Sans-culottes – A social and political label for militant supporters of the French Revolution, associated with lower-class identity and symbolic clothing choices. (Source: Encyclopaedia Britannica – sansculotte entry.) Encyclopedia Britannica

U

Upcycling – Reusing an item/material to create something new, often of higher value or improved utility. (Source: Oxford Learner’s Dictionaries – “upcycling”.) Dicionários Oxford Learner

User-generated content (UGC) – Content created by users (e.g., posts, patterns, comments), commonly foundational to social platforms and community features. (Source: Wikipedia – user-generated content.) Wikipedia

V

Virtual prototyping – Creating digital models to test and refine a product before producing physical prototypes, reducing time and material costs. (Source: ScienceDirect Topics – virtual prototyping overview.)

Summary **(mandatory item – NBR14724, item 4.2.1.13; NBR 6027)**

1 Introduction

This introduction presents O Ponto de Partida, an entrepreneurial Final Course Project developed by me at INTELI. The project is positioned at the intersection of fashion and technology and addresses a recurring challenge in the crochet community: turning traditionally static patterns into adaptable instructions that can be adjusted to different bodies and user profiles. In practice, many crochet makers organize their projects through scattered resources—such as social media posts, PDF files, and handwritten notes—which makes it difficult to manage versions, reuse knowledge, and adapt measurements without rework.

The relevance of this project is linked to promoting fashion inclusion and valuing craft knowledge through a digital structure. Since bodies and preferences vary significantly, the ability to adjust size, proportions, and fit is essential for made-to-measure garments; however, this process often depends on trial and error and advanced technical expertise. By providing a digital environment that centralizes records and organizes the creation process, the proposal aims to reduce friction, expand creative autonomy, and strengthen the value of crochet as a cultural practice and, in many cases, a source of income.

The objective of this work is to conceive and develop a platform that enables users to create, record, organize, and adapt crochet patterns through a modular approach. Core features include adjustable stitch maps, a stitch library to support learning, measurement-based body adaptation tools, and options to save, export, and share pattern versions. In addition, the project includes an internal social environment to encourage connections, collaboration, and the exchange of expertise among users.

At present, the MVP (Minimum Viable Product) has already been developed and delivered, validating the proposed main user journey and demonstrating the technical and conceptual feasibility of the solution. Therefore, this final stage of the work focuses on refinements and improvements, including usability adjustments, user experience enhancements, flow consolidation, targeted fixes, and preparation for the product’s future evolution.

1.1 Context and Motivation:

The project is positioned at the intersection of fashion, craftsmanship, and technology, focusing on the development of a digital platform to support the crochet creation process. The main motivation stems from a recurring issue identified in crocheters' daily routines: the difficulty of recording, organizing, and reusing patterns in a structured way, as well as the high effort required to adapt traditional—often static—instructions to different bodies and measurements. In practice, patterns and project records are frequently scattered across social media posts, PDF files, and handwritten notes, which complicates version control, leads to rework, and limits both learning and the professionalization of the activity. In this context, the proposed solution aims to transform the pattern into a modular and adaptable digital asset, preserving the maker's protagonism while providing greater predictability when adjusting proportions and fit.

The market opportunity identified arises from the gap between, on one hand, general-purpose platforms (social networks, file repositories, and marketplaces) and, on the other, the need for a specialized tool that offers practical support for the crocheter's "making" process—especially regarding adaptability, organization, and knowledge reuse. There is room for a product that functions as a "digital studio," capable of centralizing patterns, facilitating the creation of variations, and supporting users at different experience levels, from beginners to creators who produce for sale. In addition, the ecosystem of yarn, hook, and accessory brands represents an additional opportunity: these companies seek to reach this audience but often do so through generic and poorly targeted approaches. A platform embedded in the creation journey enables more qualified connections, with potential monetization models based on subscriptions, premium features, and B2B partnerships aligned with the usage context.

1.2 Problem Definition and Value Proposition:

Problem (customer pain point): Currently, crochet makers face significant difficulties in turning their creative process into an organized and reusable workflow. Patterns and project records are often spread across social media posts, PDF files, and

handwritten notes, which makes version control challenging, prevents consistent reproduction of a piece, and complicates the retrieval of technical information (stitches, measurements, yarn, hook size, gauge, and finishing details). In addition, adapting a pattern to different body types typically requires trial and error, repeated adjustments, and, in many cases, partial reconstruction of the work. This scenario leads to rework, time and material waste, raises the entry barrier for beginners, and limits scalability for makers who want to professionalize their production.

Value Proposition: O Ponto de Partida provides a digital platform that centralizes and structures crochet knowledge, transforming the pattern into a modular and evolving record. The solution enables users to document garments in blocks (stitches, measurements, and materials), save variations and versions, and support measurement-based adaptation, reducing reliance on manual adjustments and increasing predictability of fit and proportions. By organizing patterns as a digital archive—with export and sharing capabilities—the platform facilitates reuse, strengthens continuous learning, and expands creative autonomy. In addition, the internal social environment promotes collaboration and the exchange of practices, positioning the crochet maker as the protagonist and offering a space aligned with the creation journey.

1.3 Objectives of the Work:

Objectives of the Work

General objective:

To create and validate a computational solution that supports the adaptation and organization of crochet patterns for different body types, and to develop a business plan for its market introduction.

Specific objectives:

- To design and deliver an MVP of the O Ponto de Partida platform with the core user journey (create → document → organize → adapt → save/share).

- To implement key features, including adjustable stitch mapping, a structured stitch library, measurement-based body adaptation tools, and pattern versioning.

- To validate usability and perceived value with target users (crochet makers with beginner to advanced profiles), collecting qualitative feedback to guide refinements.

- To refine the product based on validation results, focusing on usability improvements, flow consolidation, and targeted fixes.

- To define and justify a revenue model (e.g., freemium + subscription tier and B2B partnerships with yarn/accessory brands) aligned with the platform's usage context.

- To outline a go-to-market plan, including target segments, positioning, acquisition channels, and initial traction metrics.

- To assess technical feasibility and identify next steps for scalability, maintenance, and future feature expansion.

1.4 Justification and Contributions:

From a market perspective, the solution targets a sector with significant scale and economic relevance: Brazilian handicrafts are estimated to represent around **3% of GDP**, with approximately **R$ 102 billion** in revenue and about **R$ 20 billion** in purchases of inputs, indicating a large value chain and a robust total addressable market (TAM) in which crochet is a relevant niche. Sebrae+1 In addition, the country is reported to have roughly **8.5 million artisans**, which supports the existence of a

broad user base for creation, learning, and community-building features. Empreendedorismo Atualizado+1 Market readiness for digital solutions is reinforced by evidence that **around 35% of artisans already sell online**, indicating established adoption of digital channels and supporting the viability of an online platform for organization and engagement. Agência Brasil The broader context of online learning also favors adoption: official data indicate that higher-education distance-learning entrants grew **474%** between 2011 and 2021, reflecting a consolidated behavior of learning through digital environments and strengthening the rationale for a platform that supports skill development and continuous practice. Serviços e Informações do Brasil Finally, the presence of strong industry ecosystems—such as major fairs like **Mega Artesanal**—creates opportunities for partnerships, acquisition channels, and B2B connections with brands and creators. Sebrae+1

From a technological standpoint, the project contributes a computational approach that transforms crochet patterns from static artifacts (e.g., PDFs) into **structured, modular, and versionable digital records**, enabling more systematic adaptation to different measurements and a clearer user journey from creation to documentation and reuse. From an economic standpoint, the combination of a large and active market, existing digital sales behavior, and established learning trends supports monetization paths such as **freemium/subscription** for advanced organization and adaptation features, complemented by **contextual B2B partnerships** with yarn and accessory brands within the user's creation flow.

1.5 Work Structure:

This work is organized as follows. Chapter 1 (Introduction) presents the project context, motivation, problem statement, objectives, and overall relevance. Chapter 2 (Solution Development) details the proposed solution, including Section 2.1 (Definition of Market Premises and Hypotheses), Section 2.2 (Market Sizing and Analysis), Section 2.3 (Competitive Analysis and Differentiators), Section 2.4 (Technological Solution), Section 2.5 (The Business Plan), and Section 2.6 (Validation and Results). Chapter 3 (Conclusion) summarizes the main findings, limitations, and future improvements. Finally, the document includes References, as well as Appendices and Annexes for supplementary materials.

2 Solution Development

This chapter presents how I translated the needs identified in the crochet community into a product-oriented computational solution, consolidating the concept into a delivered MVP. *O Ponto de Partida* was developed as a digital platform that supports crochet makers throughout the full creation journey—from an initial idea to a structured, reusable pattern—by turning traditionally static recipes into adaptable, versioned digital records. The core premise is that a crochet pattern should not behave like a fixed PDF, but rather as a living asset that can be edited, refined, and adjusted to different bodies without forcing the maker to restart the work or rely solely on trial-and-error.

The MVP is designed around a clear user journey that reflects how crochet makers actually work. The flow begins with creation and planning, where the user defines the project and key parameters (materials, stitch choices, and construction intent). It then moves into the pattern-building stage, supported by the Designer environment, where the maker can structure the piece using a stitch map and organize the logic of rounds and components. From there, the journey advances to adaptation, where patterns are meant to be adjusted according to body measurements and fit needs, reducing friction in resizing and improving predictability of proportions and garment fit. Finally, the platform supports preservation and reuse through saving, versioning, and managing patterns inside a centralized library—enabling users to revisit previous projects, create variations, and build a personal archive of work that grows over time.

The value proposition of the solution lies in reducing the most common sources of friction in crochet creation: fragmented documentation, weak version control, and the high cognitive and technical burden of resizing. By centralizing patterns and related decisions in one place, the platform helps users avoid losing key information across notebooks and scattered files. By representing patterns in a modular structure, it becomes easier to revise parts of a garment without rewriting the entire recipe. By enabling a “studio-like” experience—where patterns can be stored, refined, and shared—the platform supports both hobbyist makers and users who treat crochet as a serious craft or a source of income.

Beyond individual creation, the MVP also incorporates learning and community drivers that reinforce retention and long-term value. A **Stitch Library** supports continuous skill development and quick reference during creation, while community-oriented spaces (such as sharing and social interaction modules) encourage makers to exchange practices, feedback, and inspiration. This combination positions *O Ponto de Partida* not only as a tool to build patterns, but also as an environment that strengthens creative autonomy and community belonging at the intersection of fashion and technology.

The following sections describe the assumptions and market premises that guided the proposal (2.1), the sizing and analysis of the opportunity (2.2), the competitive landscape and differentiators (2.3), the technological solution implemented in the MVP (2.4), the business plan and monetization logic (2.5), and the validation process and results that inform the final refinements (2.6).

2.1 Definition of Market Assumptions and Hypotheses:

This section summarizes the market premises that guided the development of *O Ponto de Partida* and the project's core hypotheses. The solution is positioned at the intersection of crochet, digital education, and community, aiming to turn learning and creation into a guided, organized, and adaptable journey. These hypotheses mainly support product refinement and the business plan.

Target users (B2C): beginners and crochet enthusiasts in Brazil who currently learn through fragmented resources (YouTube, Instagram, Pinterest, PDFs, and handwritten notes).

Main pain point: difficulty learning in a structured way, managing project versions, and adapting patterns to different materials and measurements without rework.

Expected value: a platform that centralizes the workflow, reduces friction, and increases the likelihood of completing real pieces, with community support to sustain motivation.

Monetization (B2C): a portion of users will adopt a freemium entry point and pay R$ 24.99/month when personalization and organization deliver clear value.

B2B: yarn, hook, and accessory brands seek more contextual and targeted visibility within the creation journey.

2.1.1 Problem Hypothesis

H1: Beginners and enthusiasts experience frustration and rework due to fragmented learning and documentation, and they look for a more intuitive and organized solution.

H2: Users are willing to pay when the platform increases confidence, improves adaptation, and makes it easier to complete projects.

2.1.2 Solution Hypothesis

H3: A platform with a **guided journey** and **adaptable stitch maps** (based on the user's materials and measurements) reduces learning complexity and improves fit adaptation.

H4: A system combining **libraries**, **organization/versioning**, and **community** increases retention and perceived value, supporting a freemium + subscription model.

2.1.3 Value Hypothesis

I assume that the **R$ 24.99/month** price point and the **freemium → subscription** model are acceptable because the platform delivers clear, recurring value: it reduces frustration caused by fragmented learning (videos/PDFs/notes), increases the likelihood of finishing real pieces, and organizes patterns as reusable assets. This hypothesis is reinforced by (1) the fact that the craft sector is economically significant in Brazil, which sustains a large ecosystem of makers and suppliers, Empreendedorismo e Negócios and (2) the consolidation of online learning behavior (e.g., strong growth in distance education entrants), which supports willingness to learn and pay in digital environments. Serviços e Informações do Brasil

For revenue diversification, I also assume that a **B2B layer** (brands paying for contextual visibility inside the creation journey) is viable, since the sector moves substantial spending on inputs and brands benefit from targeted exposure at the moment the user chooses materials.

2.2 Market Sizing and Analysis:

2.2.1 Market Size (TAM, SAM, SOM):

TAM (Total Addressable Market) — Brazil

- Baseline audience (lower bound): ~8.5 million artisans in Brazil. Empreendedorismo e Negócios+1

- TAM in revenue (subscription-only, annualized):
  8.5M × (R$ 24.99 × 12) = ~R$ 2.55B/year (R$ 299.88 per user/year).

- Context: the handicrafts sector is estimated at ~3% of GDP, ~R$ 102B in revenue, and ~R$ 20B in input purchases, indicating a large economic

ecosystem in which crochet is a relevant niche. Empreendedorismo e Negócios

SAM (Serviceable Available Market)

- Digital-ready proxy: ~35% of artisans already sell online. Agência Brasil
- SAM users (upper bound, digital-ready artisans):
  8.5M × 35% = ~2.98M users
- SAM revenue (subscription-only):
  2.98M × R$ 299.88/year = ~R$ 892M/year
- Note (scope): because *O Ponto de Partida* is crochet-focused, I treat this SAM as an *upper bound* and refine it in validation by estimating the share of users specifically engaged in crochet learning/creation.

SOM (Serviceable Obtainable Market)

A realistic SOM depends on product traction, channels, and conversion. For planning, I adopt a conservative capture of the crochet-focused subset:

- Assumption for obtainability: 2% of the crochet-focused SAM (to be validated by acquisition and conversion data).
- Illustrative SOM (subscription-only): ~11,900 paying users, which corresponds to ~R$ 3.57M/year in subscription revenue.
- Add-on revenue potential: brand placements can increase SOM beyond subscriptions (e.g., monthly packages for yarn/hook/accessory brands).
-

2.2.2 Customer Segmentation and Profiling

The target audience for *O Ponto de Partida* is broad because it sits within Brazil's large handicrafts ecosystem: the sector is often estimated at around 3% of GDP and approximately R$ 102B in revenue, with a sizeable input-supply chain. Empreendedorismo e Negócios+1 In addition, Brazil is reported to have roughly 8.5 million artisans, indicating strong "critical mass" for craft-related digital products. Empreendedorismo e Negócios Digital adoption is also meaningful—data from the Mapeamento do Artesanato Brasileiro (2024) is cited as showing that about 35% of artisans already sell online, which supports the feasibility of an online platform for learning and creation. Agência Brasil Finally, online learning has grown structurally (e.g., +474% in distance-learning entrants from 2011 to 2021), reinforcing willingness to learn and pay in digital environments. Serviços e Informações do Brasil

Target customer segment (primary focus)

My primary target segment is B2C crochet beginners and enthusiasts who want to learn with less frustration and to create real pieces with more confidence—especially when they need to adapt patterns to their materials (yarn/hook) and measurements.

Customer segments

1) Hobby maker (B2C) — Persona: Cláudia

- Profile: Crochet is a hobby and part of her routine (relaxation, creativity, gifts, personal projects).
- Current behavior: Learns from videos, social media, PDFs, and informal notes; sometimes participates in groups to share ideas.
- Key pain points: fragmented materials, difficulty tracking versions/notes, and limited clarity when adapting a pattern to different sizes or yarn/hook choices.
- Value she seeks: a guided, intuitive journey and a single place to organize projects, revisit previous work, and adapt stitch maps without restarting.

2) “Legacy & portfolio” supporter (B2C) — Persona: Ana Luiza (daughter of an artisan)

- Profile: Values the emotional and cultural meaning of handmade pieces and wants to preserve them.
- Current behavior: Takes photos, stores them across phone folders/social media, but lacks a structured “portfolio” or history of how each piece was made.
- Key pain points: difficulty documenting creations in a way that can be reused, shared, or kept as a record/legacy.
- Value she seeks: an easy way to build a digital portfolio of pieces (images + story + materials + pattern logic), enabling preservation and potential future reproduction.

3) Professional maker / small craft brand (B2B/B2C hybrid) — Persona: Jalaconda (craft business)

- Profile: Produces handmade products with brand positioning, needs organization to scale and maintain consistency.
- Current behavior: Uses digital tools for marketing and sales, but product development and documentation can still be manual and hard to standardize.
- Key pain points: documenting models, transferring know-how to partners/team, handling size variation/personalization, and reducing “bottlenecks” in creation/production.
- Value she seeks: structured documentation of patterns and measurements (versioning), faster adaptation across sizes, and a portfolio/catalog that supports product consistency and growth.

4) Craft brands and suppliers (B2B) — yarn/hooks/accessories

3 Profile: Want targeted access to crochet audiences with high purchase intent.

4 Why it fits: The craft sector includes substantial spending on inputs, and events like Mega Artesanal illustrate an established ecosystem connecting industry, ateliers, and artisans—useful for partnerships and acquisition channels.

4.1 Competitive Analysis and Differentials:

Identification of competitors (direct and indirect)

Direct / closer substitutes (crochet-focused tools and ecosystems)

- YarnPal (mobile app): positions itself as an “AI companion” for crochet/knitting, with features such as photo-based stitch identification, step-by-step pattern help (upload a pattern and follow it in stages), AI coaching, and project personalization. Google Play+1

- Pattern + community platforms (e.g., LoveCrafts): provide a large catalog of patterns and a maker community, including the ability to share projects and maintain collections/libraries. lovecrafts.com

Indirect competitors (solve part of the journey, but not the full problem)

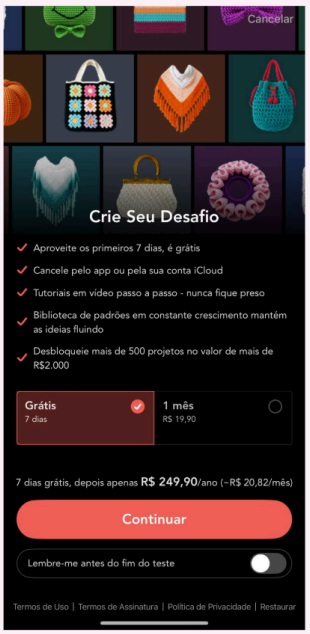
- Online course platforms (e.g., Domestika): offer crochet courses and subscriptions that give access to catalogs of creative learning content. Domestika+1

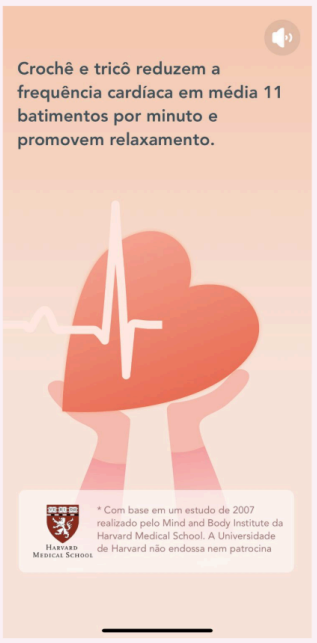
- Inspiration/collection platforms (e.g., Pinterest + YouTube ecosystem): widely used to discover ideas and save inspiration (boards, Pins, collages), but without structured pattern management or adaptation logic. Google Play

- Professional fashion modeling software (CLO 3D): robust 3D garment design and simulation software used in fashion workflows, which can be (incorrectly) perceived as an alternative for “modeling/adaptation.” clo3d.com+1

Competitor analysis (prices, features, strengths/weaknesses)

1) YarnPal (direct competitor)





- Core features: stitch recognition from photos, pattern breakdown step-by-step, AI coach, and personalization tools. Google Play+1

- Pricing signals: listed as free with in-app purchases (e.g., in-app items shown at different price points). App Store

- Strengths: fast “help me now” workflow (identify stitch, explain charts, answer questions quickly), good for beginners who need immediate guidance. Google Play

- Weaknesses vs. my proposal: tends to optimize *assistance* (AI help), while my project focuses on making the pattern itself a structured, versioned, adaptable artifact (a “living pattern”)—i.e., not just explaining instructions, but supporting creation, registration, adaptation, and reuse as a repeatable workflow.

2) CLO 3D (indirect competitor)

- Core features: professional-grade 3D garment creation and visualization (fabric/fit/silhouette simulation; advanced fashion design features). clo3d.com+1

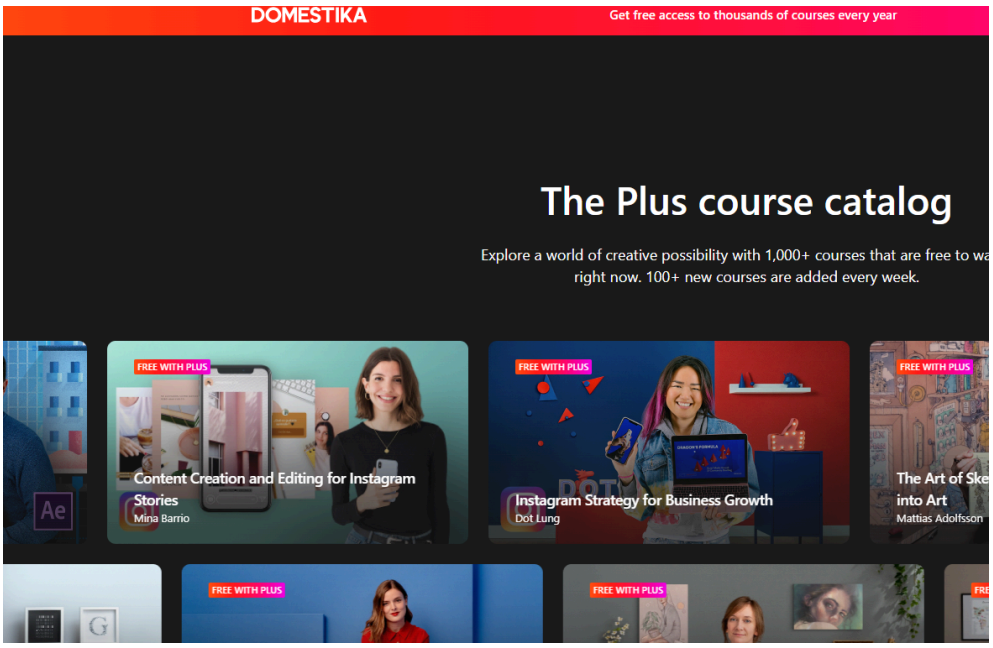
- Pricing (reference point): CLO’s official support materials indicate individual pricing around USD 50/month (USD 450/year), with a discounted student plan. support.clo3d.com

- Strengths: very strong for industrial fashion workflows (simulation, technical prototyping, 2D/3D pattern processes). clo3d.com

- Weaknesses vs. my proposal: it is not crochet-specific, has a high learning curve, and addresses “fit” through garment simulation rather than through

stitch maps + gauge + body-measure adaptation in a crochet-native logic. clo3d.com+1

3) Domestika / course platforms (indirect)



- What they do well: structured learning content and large catalogs; subscription models can give broad access to courses. Domestika+1

- Gap vs. my proposal: learning platforms usually do not function as an atelier/workbench for (i) building patterns modularly, (ii) maintaining versions/variations, and (iii) adapting patterns by measurements/gauge inside the same workflow.

4) Pinterest / dispersed content ecosystem (indirect)

- What they do well: discovery and saving inspiration via boards and Pins, with massive volume of ideas. Google Play

- Gap vs. my proposal: inspiration is not equivalent to execution—content remains fragmented, and users still need to manually translate scattered

references into a consistent, adaptable pattern.

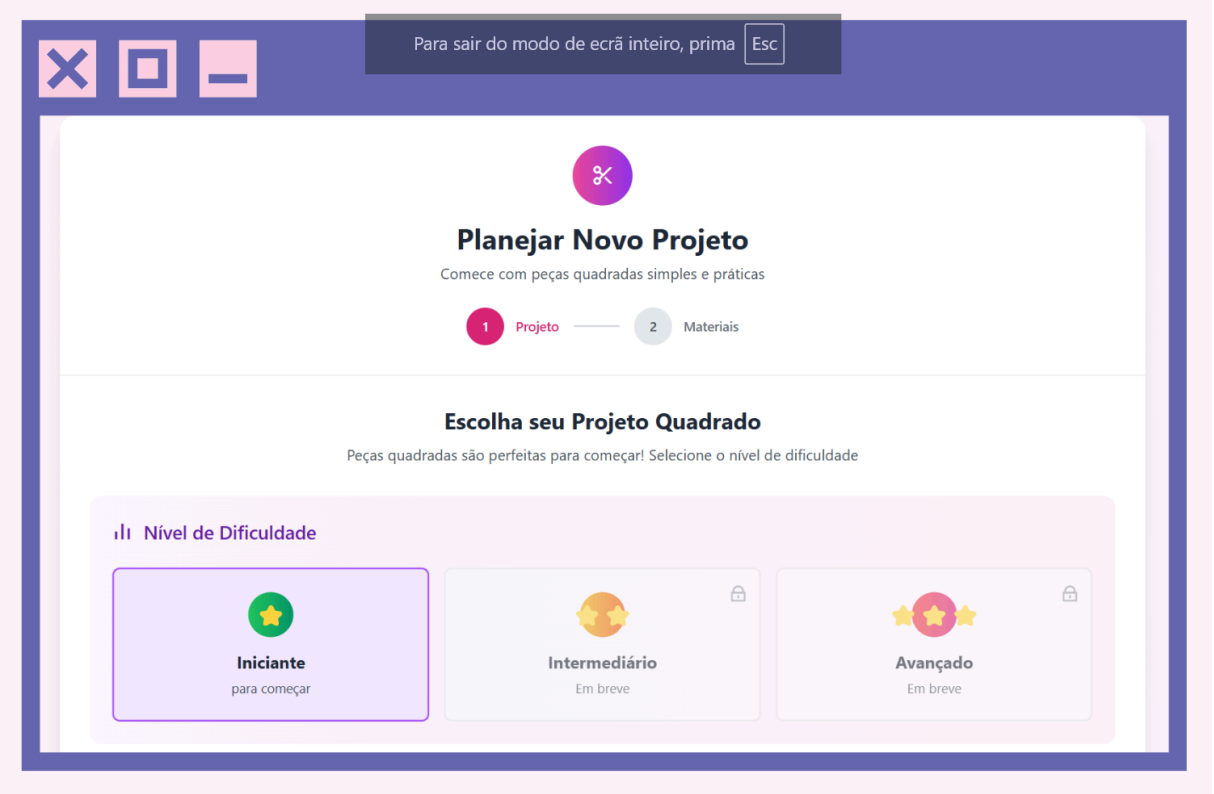
5) LoveCrafts (adjacent direct/indirect depending on use)

- What it does well: combines patterns, supplies, and community-sharing features. lovecrafts.com

- Gap vs. my proposal: patterns are generally consumed as deliverables (downloads/reads), while my solution emphasizes adaptation as a first-class feature (maps + measurement tools + gauge-based adjustments), plus version control and export/share as part of a creation pipeline.

4.2 Technological Solution

Requirements and Specifications



Functional requirements (high level):

- Enable users to create a crochet project using an interactive stitch map (Designer).
- Allow users to save and manage patterns in a personal library (search, open, edit).
- Provide basic adaptation support using measurements/material context.
- Offer a stitch library to support learning and reference.
- Include a community/social space to share inspirations and reinforce engagement.
- Support export/sharing of patterns (e.g., JSON export) to enable portability.

Non-functional requirements (high level):

- Usability: intuitive interface, especially for beginners.
- Responsiveness: functional across common screen sizes.
- Performance: smooth interaction in the stitch-map editor.
- Maintainability: modular and organized codebase to support refinement and evolution.

User specifications and main use cases:

- Create a pattern in the Designer, register basic information, and save it.
- Reopen a saved pattern from the library, edit it, and export/share it.

- Consult the stitch library while building a project.
- Interact with the community area to view and share creations.

Architecture and Technology

The delivered MVP was implemented as a web application with a client-focused architecture:

- Front-end: Next.js + React (TypeScript).
- Styling: TailwindCSS.
- Core interaction: a canvas-based stitch map editor for building patterns visually.
- Data representation: patterns are stored as structured objects that can be exported as JSON.

At MVP stage, the solution prioritizes a working end-to-end experience in the browser. A next step for production would be adding a server/database layer for authentication and cloud persistence.

4.2.1 Development and Implementation (MVP):

Methodology:
I used an iterative development approach (agile-inspired), prioritizing the main user journey first and refining through incremental improvements.

Main MVP modules implemented:

- Designer: stitch-map creation environment (visual grid editor).

- Pattern Library: list/search patterns, open and manage saved projects, export/share.

- Stitch Library: reference content to support learning and creation.

- Community/Social areas: spaces for sharing, inspiration, and engagement (MVP-level).

- Discovery/Store views: demonstrative components to represent future partnerships and visibility for brands.

Current stage:
Since the MVP has already been delivered, the work now focuses on refinement, including usability improvements, flow consolidation, and targeted fixes to prepare the product for future evolution.

4.2.2 Testing and Technical Evaluation:

In the next few months, I will conduct testing and technical evaluation to strengthen the robustness of O Ponto de Partida and to support the refinement phase after MVP delivery. The testing plan will combine different strategies, focusing on the platform's core journey (create → save → edit → export/share) and on the stability of the stitch-map editor.

Testing strategies

- Unit testing: I will validate isolated functions and components, such as pattern data structures, stitch placement logic, measurement-based adjustments, and export routines (e.g., JSON generation and validation).

- Integration testing: I will verify that key flows work consistently across modules—especially the interaction between the Designer, Pattern Library, Stitch Library, and export/sharing actions—ensuring data integrity when patterns are created, saved, reopened, and edited.

- Acceptance testing (user-centered): I will run scenario-based tests with target users (beginners and enthusiasts) to confirm that the main journey is intuitive and reliable, measuring whether users can complete core tasks without external help and identifying usability issues that require refinement.

Planned results and evaluation outputs
Because these tests are scheduled for the upcoming months, the final results will be reported after execution. The expected outputs include: (1) a documented test suite with pass/fail logs; (2) evidence of functional correctness for the main flows; (3) performance observations for the canvas-based stitch-map editor under realistic usage; and (4) a prioritized list of fixes and improvements derived from test findings. Together, these results will demonstrate the product's functionality and technical robustness while guiding the final refinements before broader adoption.

4.3 The Business Plan

The business plan for O Ponto de Partida proposes launching a digital platform for crochet learning and creation, centered on adaptable stitch maps, project organization, and a community layer. The commercial strategy follows a freemium model, where users can access essential features for free, while a Plus plan (R$ 24.99/month) unlocks advanced functionality, deeper personalization, more organization capacity, and tools aimed at users who want to treat crochet more consistently or professionally.

Revenue is structured around two main streams: recurring subscriptions (B2C) and brand partnerships/visibility (B2B)—especially for yarn, hook, and accessory brands that can advertise contextually within the creation journey. From a financial perspective, the plan considers an initial R$ 70,000 investment concentrated over three months (MVP refinement, cloud costs, marketing, and UX/design), followed by a monetization phase where the goal is to recover the investment by month six through a mix of subscriber growth and brand contracts.

Finally, the plan relies on user acquisition through social media and online communities (Instagram, YouTube, Pinterest, groups), complemented by promotion and partnership opportunities through industry events. In the medium term, the strategy is to sustain growth through retention driven by utility (adaptation and

organization) and belonging (community), enabling continuous product evolution and gradual market expansion.

4.3.1 Market and Competitor Analysis:

O Ponto de Partida targets a broad audience because it operates inside Brazil's large handicrafts ecosystem: the sector is often described as representing ~3% of GDP, with ~R$ 102 billion in revenue and ~R$ 20 billion in input purchases. Sebrae+1 In addition, Sebrae communications frequently cite ~8.5 million artisans in the country, indicating a wide base of potential users and creators. Empreendedorismo e Negócios+1 Digital adoption is also relevant: 2024 data cited in the Mapeamento do Artesanato Brasileiro indicates that around 35% of artisans already sell online, which supports the feasibility of a digital platform for learning and creation. Agência Brasil

Within this broad market, I define the following target segments (personas):

5 Cláudia (B2C — hobbyist maker): uses crochet for relaxation and creativity. Her main pains are fragmented learning materials (videos/PDFs/notes), difficulty organizing projects/versions, and high effort to adapt patterns. She values a guided journey, a stitch map to structure projects, and a personal library to save and revisit patterns.

6 Ana Luiza (B2C — "legacy/portfolio" supporter): represents users who want to preserve the emotional and cultural value of handmade pieces (e.g., documenting what a family member produced). She values a digital portfolio and structured records that make creations easier to store, share, and potentially reproduce later.

7 Jalaconda (B2C/B2B hybrid — small craft brand/atelier): needs organization and standardization to scale, especially to handle personalization and size variation. She values structured pattern documentation, reusable models, and a workflow that reduces operational bottlenecks.

8 Material brands (B2B — yarn/hooks/accessories): seek contextual visibility inside the creation journey, with potential for partnerships and niche marketing.

8.1.1 Business Model (Business Model Canvas - BMC):

Customer Segments

- B2C: crochet beginners, hobbyists, and enthusiasts (Brazil).
- B2B: yarn, hook, and accessory brands seeking contextual exposure.

Value Proposition

- Guided, intuitive crochet journey with adaptable stitch maps (materials + measurements).
- Centralized pattern organization (save, edit, version, export/share).
- Community space to sustain motivation and learning.

Channels

- Instagram, YouTube, Pinterest, and craft groups (Facebook/Discord).
- Partnerships with creators and craft events/fairs.

Customer Relationships

- Freemium onboarding + progressive unlocks (beginner → advanced).
- Community engagement (challenges, sharing, feedback loops).
- Support content (tutorials, stitch library, FAQs).

Revenue Streams

- B2C: subscription plan (Plus: R$ 24.99/month).
- B2B: brand placements/partnerships (e.g., R$ 1,000/month per brand in the initial model).

Key Activities

- Platform development and refinement.
- Content curation (stitch library/tutorials).
- Community management and growth.
- Brand partnership sales.

Key Resources

- Web platform (MVP), UX/design assets, content base.
- Developer time, marketing capabilities.
- Network of creators/partners.

Key Partners

- Craft brands and suppliers.
- Crochet creators/influencers.
- Craft communities and event organizers.

Cost Structure

- Development/refinement, cloud/infra, design/UX, marketing, tools/maintenance.

8.1.2 Marketing and Sales Strategy:

Go-to-Market (launch plan)

- Soft launch (beta): invite-based onboarding via creators and craft communities; focus on feedback and usability refinements.

- Public launch: publish the platform with a clear “learn + create + adapt” narrative, showing the stitch-map workflow and successful user outcomes.

- Partnership layer: activate initial brand presence after baseline user traction to ensure contextual relevance.

Customer acquisition and retention

Acquisition

- Short-form content showing “before/after” adaptation with stitch maps (Instagram/TikTok-style).

- YouTube tutorials that link to the platform as the workspace for practice.

- Pinterest boards driving discovery to beginner journeys and challenges.

- Creator partnerships (affiliate links or revenue share).

Retention

9 Weekly challenges, streaks, and progress milestones.

10 Personal library value: patterns saved/organized create switching costs.

11 Community loops (feedback, showcasing projects, collaborations).

12 Continuous content drops (new stitches, new guided projects).

12.1.1 Financial Projection and Feasibility:

Revenue model and pricing

- Plus subscription: R$ 24.99/month.
- Brand partnerships: modeled initially as R$ 1,000/month per brand (contextual placements inside the creation journey).

Projected expenses (initial investment)

R$ 70,000 over 3 months (refinement + launch traction), split as:

- Refinement + cloud/implementation: R$ 40,000
- Marketing (launch + acquisition): R$ 20,000
- Design/UX + creative assets: R$ 7,000
- Tools/maintenance: R$ 3,000

Break-even target and viability indicator

The plan targets recovering the R$ 70,000 investment by the end of month 6, combining subscriptions and brand revenue.

In the modeled scenario (months 4–6), a mix such as ~500–600 subscribers plus ~10–12 brands generates enough gross revenue to reach break-even.

Viability indicator (ROI logic): the project is viable if the cumulative revenue after monetization exceeds the initial CAPEX; with recurring subscription revenue, continued growth improves ROI over time.

12.2 Validation and Results

12.2.1 Validation Methodology:

To test the business hypotheses and the acceptance of the MVP, I will run a validation process over the next months using three complementary approaches. First, I will conduct customer interviews with target users (beginners, enthusiasts, and makers who sell) to confirm pain points, perceived value, and willingness to pay. Second, I will run usability and acceptance tests using task-based scenarios (e.g., create a stitch map, save a pattern, reopen and edit it, and export/share it) to identify friction points and prioritize refinements. Third, I will validate acquisition through a landing page with lead generation supported by social media campaigns, allowing me to measure real interest, acquisition cost, and subscription intent. When relevant, I will also execute A/B tests on key messages and screens (e.g., Plus plan value proposition, onboarding steps, and pricing communication).

12.2.2 Market Validation Results:

Since the validation stage will be conducted in the coming months, consolidated results will be presented after data collection. Expected outputs include: (i) qualitative feedback from interviews (main pains, perceived benefits, objections, and suggestions); (ii) engagement metrics from MVP usage (e.g., completion rate of the

main journey, time to complete tasks, number of patterns created/saved); and (iii) conversion metrics from the landing page and campaigns (CTR, lead conversion rate, and expressed interest in the Plus plan). Based on this evidence, I will decide whether to persist with the current model (freemium + subscription + brands) or pivot specific elements (e.g., simplify onboarding, adjust pricing, refine the Plus feature set, focus on a narrower niche segment, or strengthen the B2B layer).

12.2.3 Key Performance Indicators (KPIs):

Key Performance Indicators (KPIs)

To evaluate traction and sustainability, I will track:

- CAC (Customer Acquisition Cost): average cost to acquire a user by channel.
- Conversion rate: visitor → lead, lead → active user, and active user → Plus subscriber.
- Activation rate: percentage completing the first key action (e.g., creating and saving a first pattern).
- Engagement: patterns created per user, weekly active usage, community participation.
- Churn rate: monthly cancellation rate of the Plus plan.
- LTV (Lifetime Value): expected value per subscriber over time (≈ monthly price × average retention period).
- ARPU / MRR / ARR: average revenue per user and recurring revenue indicators (monthly/annual).

12.2.4 Risks and Mitigation Plan:

Financial (price sensitivity / churn): risk of low conversion or cancellations. *Mitigation:* test pricing (monthly/annual), strengthen the Plus value proposition, improve onboarding, and enhance retention through challenges and progress.

Technological (performance/bugs in the editor): risk of friction in the stitch-map workflow. *Mitigation:* structured testing (unit/integration/acceptance), performance optimization, and fix prioritization by impact.

Legal (copyright and user-generated content): risk of misuse of patterns/content. *Mitigation:* clear terms, content policies, reporting mechanisms, and basic moderation processes.

Competitive (free substitutes and AI-first apps): risk of users choosing YouTube/Pinterest or AI companion tools. *Mitigation:* differentiate through adaptability + organization + end-to-end journey; increase switching costs through personal libraries and community.

Operational (community growth and moderation): risk of scaling community management. *Mitigation:* guidelines, staged moderation, reporting tools, and curated content practices.

13 Conclusion

In this Final Course Project, I developed and delivered the MVP of **O Ponto de Partida**, demonstrating the technical feasibility of the proposal and consolidating a solution aligned with the goal of supporting crochet learning and creation through a more organized and adaptable workflow. The delivered product validates the main user journey (create, document, organize, and share patterns) and operationalizes the platform's value pillars—stitch mapping, libraries, and community. As next steps, I will focus on usability refinements, flow consolidation, and market validation with

users and brands to confirm adoption, pricing, and retention hypotheses. Finally, the project roadmap includes business-plan maturation, content expansion, and scalability preparation, with the objective of evolving the MVP into a sustainable product ready for broader market introduction.

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